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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/593,647	06/13/2000	LeRoy G. Hagenbuch	204559	7587

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EXAMINER

CRAIG, DWIN M

ART UNIT	PAPER NUMBER
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2123

DATE MAILED: 08/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/593,647	HAGENBUCH ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Dwin M. Craig	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2, 7-10 and 15 is/are allowed.
- 6) ☒ Claim(s) 1, 3-6, 11-14 and 17 is/are rejected.
- 7) ☒ Claim(s) 1 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/13/2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)          |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. <u>8/14/06</u> .                                     |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____.  | 6) <input type="checkbox"/> Other: _____.                                   |

### **DETAILED ACTION**

1. Claims 1-17 have been presented for reconsideration based on Applicants' amended claim language.

#### ***Response to Arguments***

2. The Examiner thanks the Applicants' for amending the claim language and withdraws the previously applied 35 USC 112 second paragraph rejections of claims 1, 2 and 7-10.

2.1 Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

2.2 An updated search has revealed new art.

#### ***Claims Objections***

3. Claim 1 is objected to because there appears to be a lack of antecedent basis for the phrase "*filling the loading bucket*" in line 4 of the claim. Correction is required.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Dependent Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Concerning the phrase "*by providing sidewalls of the dump body that are relatively shorter*" on lines 2&3, it is unclear what the *metes and bounds* of the

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disclosed claim language, clarification and/or amendment is required. See section 2173.05B of the MPEP;

F. Other Terms The phrases "relatively shallow," "of the order of," "the order of about 5mm," and "substantial portion" were held to be indefinite because the specification lacked some standard for measuring the degree intended and, therefore, properly rejected as indefinite under 35 U.S.C. 112, second paragraph. *Ex parte Oetiker*, 23 USPQ2d 1641 (Bd. Pat. App. & Inter. 1992).

### ***Claim Interpretation***

5. As regards independent claim 3, a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). It is noted by the examiner that the preamble of claim 3 recites, "*A body of a haulage vehicle*" however the limitation in line 4 of the claim teaches, "*modeling a body to hold the substantially conically shaped load of heaped material, where the shape of the body is determined by predetermined parameters; and*" the cited limitation has no connection to the preamble and the current claim language can be interpreted to mean "*modeling any body*" to hold a "*substantially conically shaped load of heaped material.*"

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1, 11, 13 and 14 are rejected under 35 USC 103(a) as being unpatentable over “Analysis of surface powered haulage accidents” by George M. Fesak, Rodric M. Breland and Jack Spadaro hereafter referred to as *Fesak* in view of US Patent 6,157,899 *Baker*.

6.1 As regards independent claim 1 *Fesak* discloses, *a method of loading material into a dump body of a truck whose sidewalls are spaced relatively wider than conventional dump bodies whose volumetric capacity is approximately the same the method comprising: filling the loading bucket with an amount with an amount of earthen material, (see the picture on page 7) where the loading bucket has a volumetric capacity that is approximately 1/4 or more than a*

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*volumetric capacity of the dump body (see the picture on page 7); and freeing a swinging door so as to open the bucket and allow the material held in the bucket to drop into the dump body (see the picture on page 7), whereby the door swings open and clears both the sidewalls and the floor of the dump body while minimizing the height from which the material is dropped from the bucket (see the picture on page 7).*

However, *Fesak* does not expressly disclose, *lowering the bucket into the body so that the bucket is approximately centered over the floor of the body.*

*Baker* discloses, *lowering the bucket into the body so that the bucket is approximately centered over the floor of the body* (Figures 6-10 and Col. 2 lines 45-60).

*Fesak* and *Baker* are analogous art because they are from the same field of endeavor regarding the removal of earthen material using large haulage dump trucks.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have modified the *Fesak* teaching of loading a dump body with *Baker's* methods of dumping the earthen material in the center of the dump body.

The motivation for doing so would be to minimize tire wear and ensure safe operation of a haulage vehicle in a typical mining environment, *see Baker Col. 2 lines 13-21.*

Therefore it would have been obvious to combine *Baker* with *Fesak* to obtain the invention in claims 1, 11, 13 and 14.

**6.2** As regards dependent claim 11, neither *Fesak* expressly discloses *lowering the bucket into the body and freeing the swinging door are facilitated by providing sidewalls of the dump body that are relatively shorter than sidewalls of the conventional dump bodies* (see picture on page 7).

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6.3 As regards dependent claim 13, *Fesak* does not expressly disclose, *incrementally increasing a load carried by the dump body by repeating the filling, lowering and freeing such that the load heaps substantially evenly between the sides of the body.*

However, *Baker* discloses, *incrementally increasing a load carried by the dump body by repeating the filling, lowering and freeing such that the load heaps substantially evenly between the sides of the body* (Figures 8-10 and Col. 6 lines 59-67 and Col. 7 lines 1-20).

6.4 As regards dependent claim 14, *Fesak* does not expressly disclose, *incrementally increasing a load carried by the dump body by repeating the filling, lowering and freeing such that the load is substantially centered in the body.*

However, *Baker* discloses, *incrementally increasing a load carried by the dump body by repeating the filling, lowering and freeing such that the load is substantially centered in the body* (Figures 6-10 and Col. 5 lines 16-67, Col. 6 and Col. 7 lines 1-19).

7. Claims 3-6 and 17 are rejected under 35 USC 103(a) as being unpatentable over “Stress in Sandpiles” by Kurt Liffman, Myhoung Nguyen and Paul Cleary, hereafter referred to as *Liffman* in view of US Patent 6,157,889 *Baker*.

7.1 As regards independent claim 3 *Liffman* discloses, *modeling a shape of a load of heaped material in three dimensions, where the shape of the load of heaped material is substantially conical* (Figure 4).

However, *Liffman* does not expressly disclose, *modeling a body to hold substantially conically shaped load of heaped material, where a shape of the body is determined by*

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*predetermined parameters; and producing the body according to values of the predetermined parameters resulting from the modeling of the body.*

*Baker discloses modeling a body to hold substantially conically shaped load of heaped material, where a shape of the body is determined by predetermined parameters (Figure 5); and producing the body according to values of the predetermined parameters resulting from the modeling of the body (Figures 5-10).*

*Liffman and Baker are analogous art because they are from similar problem solving area of modeling the loading effects of haulage material.*

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have modified the sand modeling methods of *Liffman* with the load body design methods of *Baker*.

The motivation for doing so would be to minimize tire wear and ensure safe operation of a haulage vehicle in a typical mining environment, *see Baker Col. 2 lines 13-21*.

Therefore it would have been obvious to combine *Baker* with *Liffman* to obtain the invention as specified in claim 3-6 and 17.

**7.2** As regards dependent claim 4 *Liffman* does not expressly disclose, *a position of the body's floor, a position of the body's sidewalls, a length of the floor, a height of sidewalls, a distance between respective sidewalls, and a position of the body front wall.*

However, *Baker* discloses, *a position of the body's floor (Figures 4-7), a position of the body's sidewalls (Figure 3), a length of the floor (Figure 5), a height of sidewalls (Figure 3), a distance between respective sidewalls (Figure 5), and a position of the body front wall (Figure 4).*



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7.3 As regards dependent claim 5, *Liffman* does not expressly disclose, *adjusting the predetermined parameters to locate a location for a center of gravity*.

However, *Baker* discloses, *adjusting the predetermined parameters to locate a location for a center of gravity* (Figure 8).

7.4 As regards dependent claim 6, *Liffman* does not expressly disclose, *adjusting the predetermined parameters to allow material to be dropped into the modeled body from a lowest practical vertical elevation over the body*.

However, *Baker* discloses, *adjusting the predetermined parameters to allow material to be dropped into the modeled body from a lowest practical vertical elevation over the body* (Col. 4 lines 16-39).

7.5 As regards dependent claim 17, *Liffman* discloses *wherein the shape of the load is dependent on the type of material* (in this case sand page 83, “*In reality, however, such a segregation pattern is not found in conical sand piles. If one pours poly disperse granular material (i.e., material containing particles of different sizes) from a point source on to a flat base to create a conical sandpile, larger particles do not go to the top of the pile*” the pile changes shape depending upon the material).

8. Dependent claim 12 is rejected under 35 USC 103(a) as being unpatentable over “Analysis of surface powered haulage accidents” by George M. Fesak, Rodric M. Breland and Jack Spadaro hereafter referred to as *Fesak* in view of US Patent 6,157,899 Baker and in further view of “A Robotic Excavator for Autonomous Truck Loading” by Anthony Stentz, John Bares, Sanjiv Singh and Patrick Rowe, hereafter referred to as *Stentz*.

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8.1 As regards dependent claim 12, neither *Fesak* nor *Baker* expressly disclose *including repeating filling, lowering and freeing until the load carried by the body reaches its volumetric capacity and is distributed substantially evenly between the sidewalls.*

However *Stentz* discloses *including repeating filling, lowering and freeing until the load carried by the body reaches its volumetric capacity and is distributed substantially evenly between the sidewalls* (page 185, “For example, it is desirable to evenly load the truck in order to distribute the weight on the tires. The placement of the soil in the truck is dependent on the soil conditions. During testing one day, the soil was very dry and non-cohesive. The motion planning script parameters had been adjusted for these soil conditions so that the soil was loaded evenly in the center of the truck bed. ”).

*Fesak*, *Baker* and *Stentz* are analogous art because they are from the same problem solving area of modeling the characteristics of heaped material and ensuring proper safety on construction worksites.

At the time the invention, it would have been obvious to a person of ordinary skill in the art to have used the modeling methods of *Stentz* because with out evenly disturbing the weight of a load in a dump body the vehicles tires and other mechanisms could wear out quickly and this would greatly increase the maintenance cost of the vehicle.

The motivation for doing so would have been to prevent wear on the tires of a haulage vehicle (see page 185 of *Stentz*).

Therefore, it would have been obvious to combine *Stentz* with *Fesak* and *Baker* to obtain the invention specified in claims 12.

***Allowable Subject Matter***

9. Claims 2, 7, 8, 9, 10 and 15 are allowed.

**9.1** Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

**9.2** Regarding dependent claim 16, while *Liffman* discloses methods of modeling substantially conical piles of haulage materials and *Baker* discloses methods of centering haulage material in a dump body and *Stentz* discloses methods of evenly distributing loads of heap material in a dump body, none of these references taken either alone or in combination with the prior art of record disclose, the dump body having a curving shape at the rear edge,, specifically including:

(claim 16) "...wherein the predetermined parameters include a curved rear edge of a floor of the body complementing the conical shape of the load of the heaped material where the load meets the floor...", in combination with the remaining elements and features of the claimed invention.

### ***Conclusion***

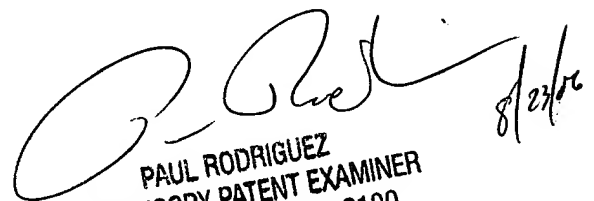
**10.** Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dwin M. Craig whose telephone number is (571) 272-3710. The examiner can normally be reached on 10:00 - 6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul L. Rodriguez can be reached on (571) 272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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8/27/06